

REMARKS

As a preliminary matter, Applicants have amended Claims 1 and 14 by replacing the term “random undulations” with the term “random wrinkles of micro-grooves.” Support for this amendment can be found throughout the written specification and in the drawings, such as, for example, on page 28 (line 20), page 29 (line 16), page 30 (line 2), page 31 (lines 1-2) and page 53 (line 4). Accordingly, no new matter is being entered.

Claims 1, 2, 3 and 9 stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 6,380,995 to Kim. Applicants respectfully traverse this rejection.

Applicants respectfully submit that the Kim reference fails to disclose or suggest all of the features of the present invention. More specifically, the Kim reference fails to disclose or suggest a method of manufacturing a substrate for a liquid crystal display device that includes, *inter alia*, a step of “performing a heat treatment to said resin layer to form random wrinkles of micro-grooves in said surface portion” (emphasis added), as defined in independent Claim 1.

As mentioned in Amendment B, Applicants respectfully submit that the Kim reference does not include a step of performing a heat treatment to form random wrinkles of micro-grooves in the surface portion of the resin layer, as defined in independent Claim 1. Instead of such random wrinkles of micro-grooves, the Kim reference describes an insulating layer with a plurality of concave and convex portions that appear to be located in a pre-selected pattern, such as the convex portions represented by the circles of Figure 3 of the Kim

reference. In the Kim reference, it appears as though a mask is used to create a predetermined pattern of concave and convex portions, and then transparent portions 33 are formed on the convex portions, as shown in Figure 3. In contrast, in the present invention, the wrinkles of micro-grooves on the resin layer (such as resin layer 20 of Applicants' Figure 3) are random, and are formed by the combination of the step of "selectively reforming the surface portion of said resin layer by applying energy . . . to said resin layer to generate a difference in a rate of thermal shrinkage between said surface portion and the layer portion other than the surface portion" and the step of "performing a heat treatment to said resin layer," as defined in independent Claim 1.

In response to the above-arguments, the Examiner appears to have taken the position that since the undulations of surface 33 in Figure 2 of the Kim reference are of different sizes, they can be considered random. *See* March 8, 2006 Final Office Action, page 3, lines 3-4. In response, Applicants respectfully submit that the differences in the sizes of the undulations referred to by the Examiner are not actually "random," but are instead due to the increased thickness of the layers below the transparent portions 33. More specifically, TFT 40 creates a thickened portion below some of the transparent portions 33. Accordingly, when the layer that defines transparent portions 33 is formed on TFT 40, the undulations above TFT 40 will be different than the undulations in areas without TFT 40. Thus, the difference in the undulations is not due to any randomness, but is actually part of a pattern resulting from the locations of the TFTs 40. Accordingly, Applicants submit that it has been shown that the transparent portions 33 are not actually "random" as defined in independent

Claim 1, but that they are instead the result of a pre-determined pattern of concave and convex portions of Figure 3 and the influence of TFT 40 of Figure 2. Therefore, all of the claimed features of independent Claim 1 are not disclosed in the Kim reference.

Additionally, Applicants respectfully submit that one of ordinary skill in the art would not have modified the manufacturing method of the device of the Kim reference so that the convex and concave portions are random because to do so would make it difficult, if not impossible, to create the transparent portions 33 (of Figure 3 of Kim) in the appropriate locations with respect to the convex portions.

Thus, for the reasons set forth above, Applicants respectfully request the withdrawal of this §103 rejection of independent Claim 1 and associated dependent Claims 2, 3 and 9.

Claims 4 and 7-9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kim in view of United States Patent No. 6,327,009 to Ichimura. Claims 5, 6 and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kim et al. in view of United States Patent No. 6,339,291 to Codama. Applicants respectfully traverse these rejections.

Claims 4-9 all depend, directly or indirectly, from independent Claim 1, and therefore include all of the features of Claim 1, plus additional features. Accordingly, Applicants respectfully request that these §103 rejection of dependent Claims 4-9 be withdrawn considering the above remarks directed to independent Claim 1, and also because neither the Ichimura reference nor the Codama reference remedies the deficiency discussed above, nor were they relied upon as such.

Claims 14-17 appear to stand rejected under 35 U.S.C. §103 as being unpatentable over United States Patent No. 6,181,397 to Ichimura in view of United States Patent Application Publication No. 2002/0030774 to Yoshii et al. Applicants respectfully traverse this rejection.

As correctly acknowledged by the Examiner, the Ichimura reference fails to disclose or suggest the “random” wrinkles of micro-grooves defined in Claim 14. Accordingly, the Examiner relied upon the Yoshii reference for this feature. However, even assuming *arguendo* that the references could be combined in the manner suggested by the Examiner, neither reference discloses or suggests a method of manufacturing a substrate for a liquid-crystal display device that includes, *inter alia*, “selectively reforming the surface portion of said resin layer by applying energy with an energy density per unit time of a prescribed value or more to said resin layer . . . to generate a difference in a rate of thermal shrinkage between said surface portion and the layer portion other than the surface portion in said resin layer,” as defined in independent Claim 14. One portion of the specification that supports this feature is found on page 28 (line 26) through page 29 (line 12).

In contrast, neither the Ichimura reference nor the Yoshii et al. reference disclose or suggest a manufacturing method in which the surface portion of the resin layer is reformed to generate a difference in a rate of thermal shrinkage, as defined in independent Claim 14. Instead of using such a difference in the rate of thermal shrinkage to help create the random undulations, both the Ichimura reference and the Yoshii et al. reference rely on a type of transfer pattern sheet, which already includes the desired undulations and that is

pressed against the resin base material to create similar undulations on the resin base material. *See e.g.*, transparent sheet 18 of Figure 3C of Ichimura and transfer pattern 42 of Figure 10E of Yoshii et al. Accordingly, as all of the features of independent Claim 14 are not disclosed or suggested in the cited references, Applicants respectfully request the withdrawal of this §103 rejection of independent Claim 14 and associated dependent Claims 15-17.

Claim 18 stands rejected under 35 U.S.C. §103 as being unpatentable over Ichimura in view of Yoshi and further in view of United States Patent No. 6,339,291 to Codama. Applicants respectfully traverse this rejection.

Claim 18 depends, indirectly, from independent Claim 14, and therefore includes all of the features of Claim 14, plus additional features. Accordingly, Applicants respectfully request that this §103 rejection of dependent Claim 18 be withdrawn considering the above remarks directed to independent Claim 14, and also because the Codama reference does not remedy the deficiency noted above.

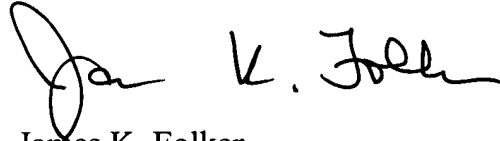
For all of the above reasons, Applicants request reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference

would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

GREER, BURNS & CRAIN, LTD.

By

A handwritten signature in black ink, appearing to read "J. K. Folker", written over the printed name.

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